

Notice of Allowability

Application No.

10/618,380

Examiner

KUEN S. LU

Applicant(s)

OWEN ET AL.

Art Unit

2167

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/16/2008.
2. ☒ The allowed claim(s) is/are 1-2, 4-8, 17, 20-27, 37, 41-42 and 44-48 (renumbered to 1-24).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 4/4,2/15,1/16/2008
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 4/25/2008
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.
2. The Action is responsive to Applicants' RCE and Amendment filed January 16, 2008. It is acknowledged that the claims 1, 4-6, 17, 21-23, 25-27, 37 and 45-46 were amended, and claims 9-10, 12-16 and 38-40 were amended. As necessitated by the Amendment, Examiner withdraws 35 U.S.C. § 101 rejections to claims 1-2, 4-10, 12-17, 20-27, 37-42 and 44-48.
3. After a thorough search and examination of the present application, and in light of the following:
prior art made of record;
Examiner's Amendments made April 25, 2008 which was authorized to amend claims 1-2, 4-8, 17, 20-27, 37, 41-42 and 44-48, and to cancel claims 3, 11-16, 18-19, 28-36, 43 and 49; and
a update search on prior art conducted in domains (EAST, NPL-ACM, Google, NPL-IEEE, etc);
Claims 1-2, 4-8, 17, 20-27, 37, 41-42 and 44-48 (renumbered to 1-24) are allowed.

Examiner's Amendments

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicants, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee. Authorization for this Examiner's Amendments, listed below was given on April 25, 2008 in a telephone interview with Mr. Guanyao Cheng, Registration Number 58,555.

4.1. Please amend claims 1-2, 4-8, 17, 20-27, 37, 41-42 and 44-48, and cancel claims 3, 11-16, 18-19, 28-36, 43 and 49 as follows:

1. (Currently Amended) A ~~memory~~ computer-readable storage medium for storing data for access by an application program being executed on a computer system, comprising:

[[a]] one or more data structure stored in said ~~memory~~ computer-readable storage medium , the data structure including or referring to:

a name;

a content repository identifier;

a plurality of properties;

a plurality of property definitions associated with the plurality of properties;

and

a reference to a parent data structure in a virtual content repository (VCR);
and

a reference to a child data structure in the VCR;
wherein the data structure is logically part of the VCR, and wherein the VCR represents a plurality of content repositories logically as a single content repository from the application program's viewpoint; ~~and~~

wherein the VCR represents contents of the plurality of content repositories as a hierarchical namespace of the one or more data structure;

wherein the reference to a parent data structure and the reference to a child data structure enables navigation of the VCR including traversal to a node in the VCR representing one of the one or more data structure, and

wherein the traversal to a node allows creating, reading, updating and deleting of the plurality of properties including or referred to by the one of the one or more data structure and allows removal of the node including deleting the one of the one or more data structure.

2. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 1

wherein the content repository identifier comprises:

a repository name; and

a content identifier that is unique for the content repository.

3. (Canceled).

4. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 1 wherein:

a property is an association between a name and at least one value; and
wherein the at least one value is stored in one of the at least one content repositories.

5. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 4 wherein:

the at least one value is a text string, a number, an image, audio and visual presentation, or binary data.

6. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 1 wherein:

a property definition specifies at least one of the following for a property:

property choices;

a reference;

a data type;

whether the property is mandatory;

whether the property is multi-valued;

whether the property is primary;

whether the property is read-only; and

whether the property is restricted.

7. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 1 wherein:

the at least one data structure is hierarchically related to other data structures and the plurality of content repositories.

8. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 7 wherein:

the at least one data structure is hierarchically inferior to the plurality of content repositories.

11-16. (Canceled).

17. (Currently Amended) A ~~memory~~ computer-readable storage medium for storing virtual content repository (VCR) information for access by an application program being executed on a computer system, comprising:

a data structure stored in said ~~memory~~ computer-readable storage medium, the data structure including:

a root node;

a first set of nodes wherein each node in the first set is hierarchically related in the VCR to at least one other node in the first set, and wherein all nodes in the first set are hierarchically inferior to the root node;

a second set of nodes associated with the first set of nodes, wherein the second set of nodes provides schema information for the first set of nodes;

wherein the schema information provides information regarding nodes, its children in the VCR, and its parent in the VCR in the first set of nodes;

wherein the VCR represents a plurality of content repositories logically as a single content repository from the application program's viewpoint;

wherein the VCR represents contents of the plurality of content repositories as a hierarchical namespace of the first set of nodes;

wherein each one of the first set of nodes has an identifier that indicates its logical location in a hierarchy in the VCR formed by the first set of nodes;

wherein each one of the first set of nodes represents one of: 1) a node container; 2) repository content; and 3) a repository; ~~and~~

wherein each one of the first set of nodes is associated with the at least one property; and

wherein the information regarding its children in the VCR and its parent in the VCR enables navigation of the VCR, including traversal to a node in the VCR wherein the traversal to the node allows creating, reading, updating and deleting information associated with the traversed node.

18-19. (Canceled).

20. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 17

Art Unit: 2167

wherein:

a property is an association between a name and at least one value.

21. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 20

wherein:

the at least one value is a text string, a number, an image, an audio and visual presentation, or binary data.

22. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 17

wherein:

a second node belonging to the second set of nodes is associated with at least one property definition.

23. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 22

wherein:

a property definition specifies at least one of the following for a property:

property choices;

a reference;

a data type;

whether the property is mandatory;

whether the property is multi-valued;

whether the property is primary;

whether the property is read-only; and

whether the property is restricted.

24. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 22 wherein:

there is a property definition for each property associated with each one of the first set of nodes.

25. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 17 wherein:

a first node belonging to the first set of nodes that represents a container is hierarchically inferior to a second node belonging to the first set of nodes that represents one of: 1) a container; and 2) a repository.

26. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 17 wherein:

a first node belonging to the first set of nodes that represents a repository is a direct child of the root node.

27. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 17 wherein:

a first node belonging to the first set of nodes that represents content is a direct or indirect child of a second node belonging to the first set of nodes that represents one of: 1) repository content; 2) a container; and 3) a repository.

28-36. (Canceled).

37. (Currently Amended) A ~~memory~~ computer-readable storage medium for storing data for access by an application program being executed on a computer system, comprising:

a plurality of first objects to provide a first group of services related to interacting with a hierarchical namespace, wherein the first group of services comprise first functions that enable associating the plurality of first objects with locations in the namespace;

a plurality of second objects to provide a second group of services related to associating information with the first object, wherein the second group of services comprise second functions that enable creating, reading, updating, and deleting the information;

a plurality of third objects to provide a third group of services related to describing attributes of the plurality of second objects, wherein the third group of services comprise third functions that enable specifying at least one of the following for the plurality of objects:
property choices;

a reference;

a data type;
whether the property is mandatory;
whether the property is multi-valued;
whether the property is primary;
whether the property is read-only; and
whether the property is restricted;
wherein the plurality of first objects is logically part of a virtual content repository (VCR) and includes a reference to a parent object in the VCR and a reference to a child object in the VCR, and wherein the VCR represents a plurality of content repositories logically as a single content repository from the application program's viewpoint.
a virtual content repository (VCR) that represents a plurality of content repositories logically as a single content repository from the application program's viewpoint and represents combined content of the plurality of content repositories as a hierarchical namespace of nodes;
wherein the plurality of first objects are associated with locations in the hierarchical namespace of nodes; and
wherein the plurality of first objects include a reference to a parent object in the VCR and a reference to a child object in the VCR.

41. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 37 further comprising:

a plurality of fourth objects to specify locations of the plurality of first objects in the namespace.

42. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 41 wherein each of the plurality of fourth objects includes:

a content repository name; and

a content identifier that is unique for the content repository.

43. (Canceled).

44. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 37, further comprising:

a fifth object to provide a fifth set of services related to searching the VCR;

45. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 37 wherein:

each of the plurality of second objects associates a name and at least one value;

and

wherein the at least one value is stored in one of the plurality of content repositories.

46. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 45 wherein:

the at least one value is a text string, a number, an image, an audio and visual presentation, or binary data.

47. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 37 wherein:

the first object is hierarchically related to other objects and to the plurality of content repositories.

48. (Currently Amended) The ~~memory~~ computer-readable storage medium of claim 37, further comprising:

a sixth object to provide a sixth set of services related to configuring the VCR.

49. (Canceled).

Reason for Allowable

5. The following is the Examiner's statement of reasons for allowance:

In the Examiner's Office Action, dated October 16, 2007, the Final Rejection under 35 U.S.C. § 102 rejections was made mainly based on the reference of Van Huben et al.: "METHODS FOR SHARED DATA MANAGEMENT IN A PERVASIVE COMPUTING ENVIRONMENT", U.S. Patent 6,327,594, filed 1/29/1999 and issued 12/4/2001, hereafter "Van Huben.

In a response filed January 16, 2008 to the Office Action of October 16, 2007, Applicant argued that the claims 1, 17 and 37 were as amended and the claims were neither anticipated, nor obvious in view of the cited reference.

Based on the argument on the subject matter of the virtual content repository defined as a single content repository whose data structure referring to a plurality of attributes in which specific definitions or associations are defined whose relationship and functionality are further bound by "**wherein the VCR represents contents of the plurality of content repositories as a hierarchical namespace of the one or more data structure; and wherein the reference to a parent data structure and the reference to a child data structure enables navigation of the VCR including traversal to a node in the VCR representing one of the one or more data structure, and wherein the traversal to a node allows creating, reading, updating and deleting of the plurality of properties including or referred to by the one of the one or more data structure and allows removal of the node including deleting the one of the one or more data structure**", the high-lighted subject matter is a feature distinguishes from Van Huben teaching cited for the 35 U.S.C 102 rejections.

Based on the subject matter as amended and incorporated, Examiner is persuaded that the cited reference does not fairly teach or suggest the subject matter described by

the combined limitations as highlighted above and further detailed in each of the independent claims 1, 17 and 37.

An update search on prior art in domains (EAST, NPL-ACM, Google, NPL-IEEE, etc) has been conducted. The prior art searched and investigated in the domains (EAST, NPL-ACM, Google, NPL-IEEE, etc) do not fairly teach or suggest teaching of the subject matter as described by the combined limitations as highlighted above and further detailed in the Examiner's Amendment in each of the independent claims 1, 17 and 37.

Claims in the groups (2 and 4-8), (20-27) and (41-42 and 44-48) are directly or indirectly dependent upon the independent claims 1, 17 and 37, respectively, and are also distinct from the prior arts for the same reason.

After a search and a thorough examination of the present Application and in light of the prior art, Claims 1-2, 4-8, 17, 20-27, 37, 41-42 and 44-48 (renumbered to 1-24) are allowed.

Conclusions

6. Any comments considered necessary by Applicants must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Contact Information

Art Unit: 2167

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kuen S. Lu whose telephone number is (571)-272-4114. The examiner can normally be reached on Monday-Friday (8:00 am-5:00 pm). If attempts to reach the examiner by telephone pre unsuccessful, the examiner's Supervisor, John Cottingham can be reached on (571)-272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for Page 13 published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, please call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KUEN S. LU,
Primary Patent Examiner

Art Unit 2167
April 30, 2008

/Kuen S Lu/

Primary Examiner, Art Unit 2167